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KNEE-DEEP IN THE BIG MUDDY:
THE EFFECT OF PERSONAL RESPONSIBILITY
AND DECISION CONSEQUENCES UPON COMMITMENT
TO A PREVIOUSLY CHOSEN COURSE OF ACTION

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Knee-Deep in the Big Muddy:
The Effect of Personal Responsibility
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to a Previously Chosen Course of Action

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Abstract

It is commonly expected that individuals will reverse decisions or change behaviors which result in negative consequences. Yet, within investment decision contexts, negative consequences may actually cause decision makers to increase the commitment of resources and undergo the risk of further negative consequences. The research presented here examined this process of escalating commitment through the simulation of a business investment decision. Specifically, 240 business school students participated in a role-playing exercise in which personal responsibility and decision consequences were the manipulated independent variables. Results showed that persons committed the greatest amount of resources to a previously chosen course of action when they were personally responsible for negative consequences.

Knee-Deep in the Big Muddy: The Effect of Personal Responsibility
and Decision Consequences upon Commitment
to a Previously Chosen Course of Action¹

Intuitively, one would expect individuals to reverse decisions or to change behaviors which result in negative consequences. Yet, there seem to be many important instances in which persons do not respond as expected to the reward/cost contingencies of their environments. Specifically, when a person's behavior leads to negative consequences we may find that the individual will, instead of changing his behavior, cognitively distort the negative consequences to more positively valenced outcomes (see, e.g., Abelson et. al., Aronson, 1966; Staw, 1975; Weick, 1966). The phenomenon underlying this biasing of behavioral outcomes is often said to be a self-justification process in which individuals seek to rationalize their previous behavior or psychologically defend themselves against adverse consequences (Aronson, 1968, 1972; Festinger, 1957).

No doubt, the largest and most systematic source of data on the justification of behavior following adverse consequences is provided by the literature of forced compliance. Typically, in forced compliance studies an individual is induced to perform an unpleasant or dissatisfying act such as lying to a fellow subject about the nature of a task (e.g. Festinger & Carlsmith, 1957; Collins & Hoyt, 1972; Calder, Ross, & Insko, 1973), writing an essay against one's own position (e.g. Cohen, 1962; Linder, Cooper, & Jones, 1967; Sherman, 1970), eating a disliked food (Brehm, 1959), or performing a dull task (e.g. Freedman, 1963; Weick, 1964; Pallak, Sogin, & Van Zante, 1974). Negative consequences result from carrying out each of these counterattitudinal acts when no external rewards are present to compensate for the dissatisfying nature of the experimental task (Collins & Hoyt, 1972). However, since it is difficult for the subject in forced compliance experiments to undo the

consequences of his acts, it is predicted that the individual will bias his attitude on the experimental task (or change his opinion on an attitudinal issue) so as to cognitively reduce any negative outcomes resulting from his behavior. In short, the individual is predicted to justify his previous behavior or defend himself from negative consequences through the perceptual biasing of behavioral outcomes.²

Recent empirical research has shown that there are two basic preconditions for the biasing of outcomes within forced compliance situations. First, the individual must have committed himself to behavioral consequences which are irrevocable or at least not easily changed (Brehm & Cohen, 1962). If it is readily possible to reverse one's own behavior, then this course of action may often be taken to reduce negative consequences rather than any biasing of behavioral outcomes (Staw, 1974). Secondly, the individual must feel personally responsible for the negative consequences of his behavior (Carlsmith & Freedman, 1968; Cooper, 1971). That is, a person must perceive at least a moderate degree of choice in his behavior (Linder, Cooper, & Jones, 1967), and the possibility of negative consequences should have been anticipated at an earlier decision point (Brehm & Jones, 1970; Cooper, 1972).

Self-justification in Investment Decision Contexts

Though forced compliance studies have provided a great deal of data on the biasing of behavioral outcomes, there remain a large number of situations in which individuals may be able to go beyond the distortion of negative consequences to rationalize a behavioral error. For example, one societally important context in which individuals may take new and concrete actions to justify their behavior following negative consequences is that of investment decision making. Investment decision contexts are considered broadly here as situations in which resources are allocated to one decisional alternative over others, but in which the level of resources can be increased or decreased at the discretion of the decision maker.

When negative consequences are incurred within an investment context, it is often possible for a decision maker to greatly enlarge the commitment of resources and undergo the risk of additional negative outcomes in order to justify prior behavior or demonstrate the ultimate rationality of an original course of action. It follows, however, that committing additional resources to a losing decisional alternative can also turn into a negative cyclical process. That is, due to a need to justify prior behavior, a decision maker may increase his commitment in the face of negative consequences, and this higher level of commitment may, in turn, lead to further negative consequences. Within the sphere of governmental policy making, just such an example of committing resources to a costly decisional alternative was described by George Ball, the former Under Secretary of State, in some early observations on U.S. involvement in Indochina.

...Once large numbers of U.S. troops are committed to direct combat, they will begin to take heavy casualties in a war they are ill-equipped to fight in a non-cooperative if not downright hostile countryside. Once we suffer large casualties, we will have started a well-nigh irreversible process. Our involvement will be so great that we cannot--without national humiliation--stop short of achieving our complete objectives. Of the two possibilities, I think humiliation would be more likely than the achievement of our objectives--even after we have paid terrible costs. (Memo from George Ball to President Lyndon Johnson, July, 1965; source: The Pentagon Papers, 1971).

Obviously, many factors may have influenced governmental decision making in the commitment of men and material to the war in Indochina. But, the comments of this high level official do underscore the need for research on the possibility that important resource investment decisions may be influenced by the reluctance of individuals to admit past mistakes or a need to justify prior behavior.

Assessing Self-justification in Investment Decisions

An empirical test of self-justification in an investment decision context would seem to involve an assessment of whether or not negative consequences serve to increase individual's commitment to a decisional alternative.

However, an unambiguous test of self-justification would necessitate more than the simple manipulation of consequences and the measurement of subsequent commitment. This is because other theoretical mechanisms might also account for the same empirical relationship between commitment and consequences. One such mechanism might be the desire of decision makers to maximize their own outcomes, since sometimes it is precisely when negative consequences have been incurred that a new and larger commitment to a decisional alternative will pay off in the future. A separate but related mechanism which may also account for the effect of negative consequences on the commitment of resources may be a "gambler's fallacy" that resources should always be placed in a losing decisional alternative since "things are bound to get better". Implicit in the notion of a gambler's fallacy is the perception of long-run equality of investment alternatives and the non-independence of outcomes over time (see Lee, 1971).

The separation of self-justification from alternative theoretical mechanisms within an investment decision context may depend upon manipulations conceptually similar to those used in previous forced compliance studies. As noted in several earlier studies (e.g. Collins & Hoyt, 1972; Calder, Ross, & Insko, 1973), the rationalization of one's behavior has been shown to be significantly affected by the manipulation of prior choice and negative consequences. Within an investment decision context, self-justification may similarly depend upon the level of personal responsibility one has had in determining a particular course of action and the outcomes resulting from those actions. The experiment described below was therefore designed to test self-justification within an investment decision context by manipulating these two independent variables and measuring their effects upon the commitment of resources to a previously chosen course of action. Through the maximization of gain or a gambler's fallacy, one might expect negative

consequences to cause an increase in the commitment of resources to a decisional alternative. In addition, due to the simple consistency of actions over time, one might also expect individuals to increase their commitment to a decisional alternative for which they have had some prior choice. However, only self-justification would predict an interaction of personal responsibility and decision consequences such that increases in commitment would be even greater than the additive effects of these two separate factors.

Method

Subjects

The subjects of this experiment were 240 undergraduate students enrolled in the College of Commerce and Business Administration at the University of Illinois, Urbana-Champaign. Subjects had volunteered to participate in a study on financial problem-solving as one means of fulfilling a course research requirement. Upon arrival, the subjects were asked to work on the "A & S Financial Decision Case" in which it was necessary to play the role of a corporate executive in making some decisions about the allocation of research and development funds.

As students in a business school, subjects generally were experienced in working on written cases in which an organizational or financial scenario is presented and some action or set of actions are called for by the student. However, in order to maximize the involvement of subjects and to provide a rationale for the study, the experimenter told each subject that the purpose of the case was to examine the effectiveness of business decision making under various amounts of information. Each subject was told that the particular case on which he would be working contained only a limited amount of information, but that the information provided should still be sufficient for a business school student to make "a good financial decision". Subjects were asked to do the best job they could on the cases and to place their names on each page of the case material.

The A & S Financial Decision Case

The financial decision case used in this study describes a hypothetical corporation in the year 1967. The case depicts the financial history (including ten prior years of sales and earnings data) of the "Adams & Smith Company", and a scenario is presented in which the subject is asked to play a major role in financial decision-making. As stated in the case, the profitability of the A & S Company, a large technologically-oriented firm, has started to decline over several preceding years, and the directors of the company have agreed that one of the major reasons for the decline in corporate earnings (and a deterioration in competitive position) lay in some aspect of the firm's program of research and development. The case further states that the company's directors have concluded that 10 million dollars of additional R & D funds should be made available to its major operating divisions, but, that for the time being, the extra funding should be invested in only one of the corporation's two largest divisions. The subject is then asked to act in the role of the Financial Vice President in determining which of the two corporate divisions, Consumer Products or Industrial Products, should receive the additional R & D funding. A brief description of each corporate division is included in the case material, and the subject is asked to make the financial investment decision on the basis of the potential benefit that R & D funding will have on the future earnings of the divisions. In addition to circling the chosen division, subjects were also asked to write a brief paragraph defending their allocation decisions.

After completing the above section of the case and turning it in to the experimenter, subjects were administered a second section of the case which necessitated another financial investment decision. Part II of the Financial Decision Case presents the subject with the condition of Adams & Smith Company in 1972, five years after the initial allocation of research and development funds. As stated in Part II, the R & D program of Adams & Smith is again up

for re-evaluation, and the management of the company is convinced that there is an even greater need for expenditure on research and development. In fact, 20 million dollars has been made available from a capital reserve for R & D funding, and the subject, as the Financial Vice President, is again asked to decide upon its proper allocation. This time, however, the subject is allowed to divide the R & D money in any way he wishes among the two major corporate divisions. Financial data (e.g. sales and earnings) is provided for each of the five years since the initial allocation decision and, as earlier, the investment decision is to be made on the basis of future contribution to earnings. Subjects made this second investment decision by specifying the amount of money that should be allocated to either the Consumer Products or Industrial Products divisions (out of a total of 20 million) and again wrote a paragraph defending the decision.

Manipulation of Consequences

Decision consequences were experimentally manipulated in this study through the random assignment of financial information. One half of the subjects were provided information that the division initially chosen for R & D funds subsequently performed better than the unchosen division, while one half were given information showing the reverse. For example, in the positive consequences condition, subjects received financial data which showed that the chosen division had returned to profitable levels while the unchosen division continued to decline. In a parallel manner, subjects in the negative consequences condition received financial data which showed a deepening decline in the profitability of the chosen division but an improvement in the unchosen division. The exact nature of the financial data provided to subjects is shown in Tables 1 and 2.

Insert Table 1 and 2 about here

Manipulation of Personal Responsibility

One half of the subjects were randomly assigned to the high personal responsibility condition in which two investment decisions were sequentially made by the subject. This condition conformed to the two-part financial decision case described above in which subjects made an initial decision to allocate R & D funds, discovered its consequences, and then made a second investment decision. However, one half of the subjects were also randomly assigned to a low personal responsibility condition in which the entire financial decision case was presented in one section. In the low personal responsibility condition, subjects were asked to make the second allocation decision without having made a prior choice as to which corporate division was most deserving of R & D funds. Subjects in this condition received one set of case materials which described the financial condition of the Adam & Smith Company as of 1972, the time of the second R & D funding decision. They were told in the case that an earlier R & D funding decision had been made in 1967 by another financial officer of the company and that the preceding officer had decided to invest all the R & D funds in the Consumer (or Industrial) Products division. The financial results of each corporate division (e.g. sales and earnings data) were presented from 1957 to 1972, and, like other subjects, persons in the low responsibility condition were asked to make the (second) R & D funding decision based upon the potential for future earnings. In sum, the information presented to low personal responsibility subjects was identical to that given to other subjects except for the fact that the case's scenario began at a later point in time (1972 rather than 1967) and necessitated making the second investment decision without having participated in an earlier choice.

Dependent Variable

The dependent variable utilized in this study was the individuals' commitment to a previously chosen investment alternative. This variable was operationalized by the amount of money subjects allocated on the second R & D funding decision to the corporate division chosen earlier (either chosen earlier by the subject or the other financial officer mentioned in the case). The amount allocated to the previously chosen alternative could range between zero and 20 million dollars.

Summary of Treatment Groups

Of the 120 subjects in the high personal responsibility condition, 64 initially chose the Consumer Products Division as the best investment for R & D funds, while 55 initially chose the Industrial Products Division. (One subject was unable to make a choice between Consumer and Industrial Products and therefore had to be excluded from further analyses). Since subjects self-selected themselves to prior choices and then financial information was randomly assigned, four cells were created by initial choice and financial information. However, as shown in Table 3, these four cells can be collapsed into two primary treatment groups of positive decision consequences and negative decision consequences.

Insert Table 3 about here

Of the 120 subjects assigned to the low personal responsibility condition, thirty were also assigned to each of the four cells described above. For example, thirty were given cases in which another financial officer had chosen the Consumer Products Division and it continued to decline; thirty

were given cases in which another financial officer had chosen the Consumer Products Division and it started to improve; thirty were given cases in which another financial officer had chosen the Industrial Products Division and it continued to decline; and, thirty worked on cases in which Industrial Products was chosen and it started to improve. Again, the four cells can be collapsed into two treatment groups of positive and negative decision consequences comprising 60 subjects in each.

The final form of the design of this experiment was a 2×2 factorial in which personal responsibility and decision consequences were the manipulated independent variables. As stated earlier, the amount of money invested in the previously chosen corporate division (previously chosen either by the subject or the other financial officer mentioned in the case) was the dependent measure utilized in the study.

Results

Preliminary Analysis

A preliminary analysis was conducted to determine whether the object of a subject's prior choice (Consumer Products-Industrial Products) or the exact form of financial information ($C \uparrow I \downarrow$ or $C \downarrow I \uparrow$) affected the amount of money allocated to the previously chosen alternative. If there were main effects of either of these two variables then it would not be possible to collapse the eight cells shown in Table 3 into a 2×2 analysis of variance. As can be seen from the data of Table 4, there were no main effects of either the object of prior choice ($F < 1.00$, $df = 1/231$, n.s.) or the exact form of financial information ($F < 1.00$, $df = 1/231$, n.s.).

Insert Table 4 about here

Effects of Personal Responsibility and Decision Consequences

Since there were no main effects of the object of prior choice and financial information, a 2×2 analysis of variance was conducted in which personal

responsibility and decision consequences were the independent variables. Table 5 shows that there were significant main effects of both personal responsibility and decision consequences, and a significant interaction of the two independent variables.³

Insert Table 5 about here

Under high personal responsibility conditions, subjects allocated an average of 11.08 million dollars to the corporate divisions they had earlier chosen for extra R & D funding. Under low personal responsibility conditions, subjects allocated an additional 8.89 million dollars to the corporate divisions previously chosen by another financial officer. Under positive decision consequences, subjects allocated an average of 8.77 million to the previously chosen alternative, while 11.20 million was allocated under negative consequences.

Interaction of Personal Responsibility and Decision Consequences

When subjects (personally) made an initial investment decision which declined, they subsequently allocated an average of 13.07 million dollars to this same alternative in the second funding decision. As shown in Figure 1, the amount invested in the previously chosen alternative was greater in the high personal responsibility - negative consequences condition than in any of the other three experimental conditions. Although this result could have been expected from two significant main effects of personal responsibility and consequences, the difference between the high personal responsibility - negative consequence condition and the other cells was of such magnitude as to produce a significant interaction. Furthermore, a close analysis of Figure 1 shows that the only significant differences among any of the four experimental conditions were between the high responsibility - negative consequences cell and the other three experimental conditions. For example, consequences did not have a significant

effect under low personal responsibility conditions ($t=1.20$; $df=118$; n.s.), and responsibility did not significantly affect results under positive consequences conditions ($t=1.13$, $df=118$, n.s.).

Insert Figure 1 about here

Discussion

Interpretation of the Effects

The main effect of decision consequences upon commitment to a previously chosen alternative could be explained by a maximization of gain hypothesis. Either through the objective re-appraisal of action-outcome contingencies following negative consequences or through a "gambler's fallacy" that the probability of gain is increased by prior failure, individuals could have decided to increase their investment of resources. However, it is interesting to note that, although a maximization of gain hypothesis provides an adequate explanation of the main effect in analysis of variance terms, its explanatory power is somewhat weakened when individual cell means are considered. Specifically, while maximization can account for the effect of decision consequences under the high responsibility condition, it is less clear why there was no significant effect of consequences under the low responsibility condition.⁴

A related interpretive problem also weakens the consistency of choice explanation of the main effect of personal responsibility. For example, it may well be true that, due to consistency in choice decisions, individuals will allocate more money to an investment alternative that was personally chosen at an earlier point in time (e.g., under high responsibility) than one chosen previously by someone else (e.g., under low responsibility).

However, when the individual cells of the analysis of variance are examined (see Figure 1), it appears that the main effect of personal responsibility is not fully explained by consistency. Only under negative consequences was there a significant difference between the high and low responsibility conditions, although there was a nonsignificant trend under positive consequences.

Thus, from the data of this study, it is not unreasonable to conclude that the primary effect of responsibility and consequences was that individuals invested a substantially greater amount of resources when they were personally responsible for negative consequences. The significantly greater commitment of resources under this one experimental condition clearly accounted for the interaction of personal responsibility and decision consequences. However, a close examination of Figure 1 also shows that the substantial difference between the condition of high personal responsibility - negative consequences and the other cells could also underlie the statistical significance of the two main effects. As a result, the data from this study provide even somewhat stronger support than expected for the hypothesis that individuals who are personally responsible for negative consequences will increase the investment of resources in a previously chosen course of action.

Self-justification Versus Self-perception

Frequently, when a self-justification process is experimentally tested its outcroppings are difficult to separate from those derived from self-perception theory (Festinger, 1957, 1972). The distinction between self-justification and self-perception is also important to the interpretation of the present study and should be considered in some depth.

In essence, the question of self-justification versus self-perception revolves around dual formulations of the process of rationalization. On the one hand, self-justification (Aronson, 1968, 1972) or dissonance theory (Festinger, 1957) posits that individuals possess a potent need to restore the "appearance" of rationality to their own behavior. As a result, the theory predicts that individuals will cognitively re-evaluate decisional alternatives after an important choice (e.g. Walster, 1964; Knox and Inkster, 1968; Vroom, 1971) or actively distort the characteristics of a behavioral task (e.g. Festinger & Carlsmith, 1957; Weick, 1966). On the other hand, self-perception theory posits that individuals retrospectively restore rationality to their behavior by simply inferring the causes of their own actions within a social context. Self-perception theory predicts that individuals will re-evaluate their behavior so that it conforms to their own notions of how one might feel or behave if he were acting rationally. Thus, like self-justification, the retrospective analysis of behavior which comprises self-perception theory can also account for the re-evaluation of alternatives following a decisional choice (see Kelley, 1967, 1971) or changes in the perception of the characteristics of a behavioral task (see Calder & Staw, in press; Deci, 1971, 1972; Salancik in press; Staw, 1975).

It is possible that a self-perception analysis can also be usefully applied to the effects of personal responsibility and decision consequences within an investment decision context. For example, when individuals personally select a course of action which results in negative consequences, they may retrospectively infer that their prior choices were especially meritorious in that they required some suffering and, as a result, they may subsequently choose to invest even greater amounts of resources in the losing alternative. This

cause-effect sequence, however, does not appear as plausible an explanation of the present data as an individual need or predisposition to justify behavior. The primary interpretive problem facing a self-perception analysis is the fact that there is substantial body of evidence which shows that individuals attempt to avoid the self-attribution of causality when behavior leads to negative consequences or results in personal failure (see Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum, 1972). Thus, it would seem very unlikely for individuals to attribute greater internal causality (and therefore invest more) in a previously chosen alternative which has led to negative consequences. In contrast, it would seem more likely for individuals to take concrete actions to reduce negative consequences for which they are responsible or at least to attempt to reduce those negative outcomes which cannot be attributed to an external source. This latter interpretation is consistent with a self-justification notion that individuals actively seek to maintain or restore the appearance of rationality to a previously chosen course of action.⁵

Self-justification and the Escalation of Commitment

As we have seen, when individuals are personally responsible for negative consequences, they may decide to increase the investment of resources to a prior course of action. It follows that this same process of escalation may also occur in many decision contexts in which additional time, effort, and resources are committed to an unsatisfactory policy alternative. Thus, further research should focus on the critical factors underlying the escalation of resources, both in terms of the amount of resources committed and the number of times an increase in resources will be made to a decisional alternative.

Specific independent variables worthy of study may be the amount of loss already incurred by a decision maker (see Weick, 1974, for discussion of the "Vietnam Dollar" phenomenon), the perceived efficacy of the resources being committed (e.g. the ability of R & D expenditures to increase future profits), the nature of the decision making entity (e.g. individual decision maker vs. group decision making body), personal characteristics of the decision maker (e.g. self-esteem, tolerance for ambiguity), and the evaluative consequences of the situation.

One conceptual note which could prove useful in future studies of the escalation of commitment is the distinction that, within investment decision contexts, there may be two separate sources of self-justification. First, an individual may desire to demonstrate rationality to himself or restore consistency between the consequences of his actions and a self-concept of rational decision making (Aronson, 1968). This may be a rather ubiquitous phenomena as has been demonstrated by research on cognitive dissonance and other consistency theories (see Abelson, Aronson, McGuire, Newcomb, Rosenberg, & Tannebaum, 1968). Secondly, the individual may attempt to demonstrate rationality to others or to prove to others that a costly error was really the correct decision over a longer term perspective. This second form of self-justification would seem to be most important in organizational contexts where a decision maker may be uncertain of his own status within a social hierarchy, or, in governmental policy situations in which a decision maker may be anxious about his political standing among constituents. No doubt, these two forms of self-justification could both be viewed as face-saving activities (Goffman, 1959), with the distinction of an internal versus external orientation on the part of the decision maker. However, while the first form of self-justification may be based on a general human need to be consistent and correct (Festinger, 1957; White, 1959), the second form may relate to individual desires for social approval (Crowne and Marlow, 1964). Future research should

be directed toward the specification of each of these forms of self-justification and the determination of their relative influence within investment decision contexts.

FOOTNOTES

1. The author wishes to express his gratitude to William Brighton for his help in the preparation of experimental materials, to Greg R. Oldham, Louis R. Pondy, and Gerald R. Salancik for their comments on an earlier version of this manuscript, and to The Center for Advanced Study at the University of Illinois, Urbana-Champaign for the facilities necessary to complete this study.
2. An active controversy exists over the theoretical interpretation of the data from forced compliance studies (see Bem, 1967, 1972; Jones, et. al. 1968; Ross & Shulman, 1973). However, the issue of self-justification versus self-perception will be addressed in a later section of the paper.
3. In a $2 \times 2 \times 2$ analysis of variance there was a corresponding main effect of personal responsibility, an interaction of prior choice and financial information (same as main effect of decision consequences), and a triple interaction of personal responsibility, prior choice, and financial information (same as interaction of responsibility and decision consequences).
4. It is possible, of course, to postulate (post-hoc) that the valence of future outcomes was less for subjects under low rather than high responsibility conditions, and, thus, the motive to maximize gain was correspondingly weaker in low rather than high responsibility conditions.
5. Other studies which (indirectly) demonstrate the escalation of commitment using a "foot in the door" technique (e.g. Freedman and Fraser 1966) can be interpreted by either an increase in the perception of internal causality following increases in commitment or by an individual need to justify prior behavior.

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Table 1

Consumer Products Contribution to Sales and Earnings
of Adams & Smith Company¹

<u>Fiscal Year</u>	<u>Sales</u> [*]	<u>Earnings</u> [*]
1957	624	14.42
1958	626	10.27
1959	649	8.65
1960	681	8.46
1961	674	4.19
1962	702	5.35
1963	717	3.92
1964	741	4.66
1965	765	2.48
1966	770	(.12)
1967	769	(.63)

First R & D Funding Decision as of 1967

<u>Fiscal Year</u>	<u>Manipulated Improvement</u>		<u>Manipulated Decline</u>	
	<u>Sales</u> [*]	<u>Earnings</u> [*]	<u>Sales</u> [*]	<u>Earnings</u> [*]
1968	818	.02	771	(1.12)
1969	829	(.09)	774	(1.96)
1970	827	(.23)	762	(3.87)
1971	846	.06	778	(3.83)
1972 (est)	910	1.28	783	(4.16)

Second R & D Funding Decision as of 1972

* in millions of dollars

¹ Parentheses denote net losses in earnings

Industrial Products Contribution to Sales and Earnings
of Adams & Smith Company ¹

<u>Fiscal Year</u>	<u>Sales</u> [*]	<u>Earnings</u> [*]
1957	670	15.31
1958	663	10.92
1959	689	11.06
1960	711	10.44
1961	724	9.04
1962	735	6.38
1963	748	5.42
1964	756	3.09
1965	784	3.26
1966	788	(.81)
1967	791	(.80)

First R & D Funding Decision as of 1967

<u>Fiscal Year</u>	<u>Manipulated Improvement</u>		<u>Manipulated Decline</u>	
	<u>Sales</u> [*]	<u>Earnings</u> [*]	<u>Sales</u> [*]	<u>Earnings</u> [*]
1968	818	.02	771	(1.12)
1969	829	(.09)	774	(1.96)
1970	827	(.23)	762	(3.87)
1971	846	.06	778	(3.83)
1972 (est)	910	1.28	783	(4.16)

Second R & D Funding Decision as of 1972

* in millions of dollars

¹ Parentheses denote net losses in earnings

Table 3

Schematic Analysis of the Cells

to Which Subjects Were Assigned

Under Both High and Low Responsibility Conditions

HIGH PERSONAL RESPONSIBILITY

Financial Information

		C+I+	C+I+
Initial Choice	Consumer Products	Positive Consequences (n=32)	Negative Consequences (n=32)
	Industrial Products	Negative Consequences (n=27)	Positive Consequences (n=28)

LOW PERSONAL RESPONSIBILITY

Financial Information

		C+I+	C+I+
Initial Choice	Consumer Products	Positive Consequences (n=30)	Negative Consequences (n=30)
	Industrial Products	Negative Consequences (n=30)	Negative Consequences (n=30)

Table 4

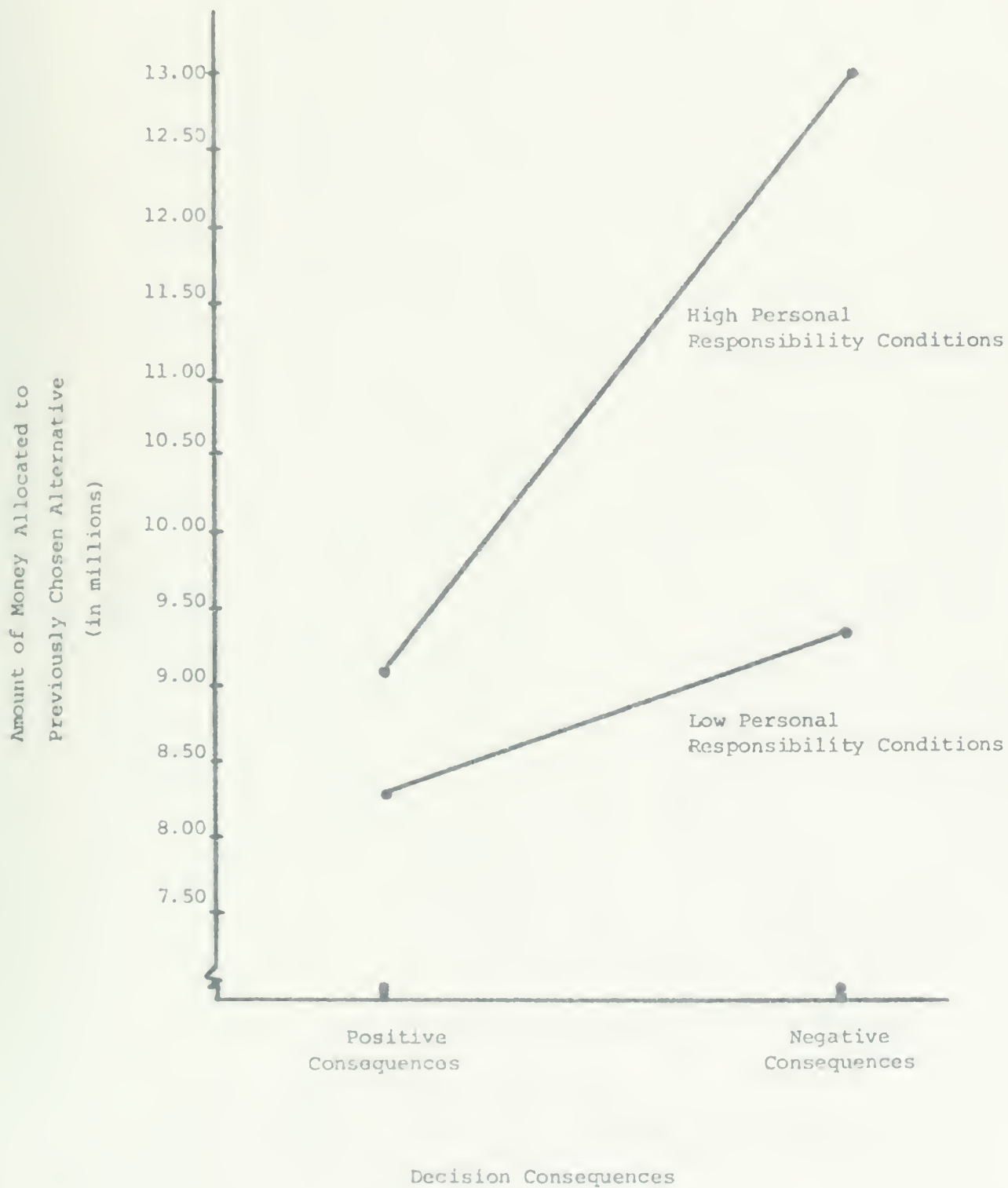
Amount of Money (in millions) Allocated to
Previously Chosen Alternative by Level of Personal Responsibility,
Object of Prior Choice, and Financial Information

Personal Responsibility	Prior Choice	Financial Information	
		C↑ I↓	C↓ I↑
High	Consumer Products	9.36 positive consequences	12.56 negative consequences
	Industrial Products	13.46 negative consequences	9.00 positive consequences
Low	Consumer Products	8.22 positive consequences	9.22 negative consequences
	Industrial Products	9.65 negative consequences	8.48 positive consequences

Table 5
 Analysis of Variance of Effects of
 Personal Responsibility and Decision
 Consequences upon Allocation of Resources
 to a Previously Chosen Alternative

Source	df	MS	F	P
Personal Responsibility (P)	1	282.36	14.40	<.001
Decision Consequences (D)	1	351.57	17.93	<.001
Interaction (P x D)	1	109.12	5.56	<.019
Error	235	19.61	----	

Figure caption: Amount of Money Allocated
to Previously Chosen Alternative by Personal
Responsibility and Decision Consequences







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